

SUPPORT FOR THE AMENDMENTS

Claim 15 is amended to delete the term “whisker” and to replace capital letters with lower case letters for generic name descriptions.

Claim 17 is cancelled.

Claim 19 is amended to correct an obvious spelling error.

No new matter is believed added to this application by entry of this amendment.

Upon entry of this amendment, Claims 1-16 and 18-20 are active.

REMARKS/ARGUMENTS

The claimed invention provides an injection molded object comprising a lactic acid based resin; and a metal hydroxide in a ratio of 5 to 40 mass parts per 100 mass parts of the lactic acid based resin. The metal hydroxide is surface-treated, and Na<sub>2</sub>O (w-Na<sub>2</sub>O) present on a surface of grains of the metal hydroxide is 0.1 mass % or less, but more than 0% based on the total mass of the metal hydroxide.

The rejection of Claims 1, 3-5, 7 10-11 and 14-17 under 35 U.S.C. 103(b) over Sugihara (U.S. 2002/0017734) in view of Ahara (JP 09-208740) are respectfully traversed.

Sugihara describes a process for **injection-foaming** a thermoplastic resin by using an injection molding machine with a two-stage-compression screw, injecting a physical foaming agent into the cylinder of the machine at a pressure lower than the storage pressure of the physical foaming agent, mixing it with a melted resin and expanding the volume of the cavity of the mold at the time of injection and an object made according to the method.

Applicants submit that Sugihara requires a physical foaming agent in the form of fine particles be injected into the cylinder of the injection molding machine at low pressure without requirement of a pressurization device [0025]. As described in [0099], the **addition**

**amount of the fine particles is 0.1 to 5 wt. % relative to the raw material resin.** Sugihara describes [0099]:

... Furthermore, considering the contamination of the hopper of the injection molding machine, deposits of powder on the product surface and the wear of the screw, these fine particles may be used after being processed into a masterbatch containing 5 to 50 wt. % of fine particles using resin, wax or rubber as the base material, for example.

Applicants submit that the masterbatch composition described by Sugihara is a concentrate additive material which serves as a source for adding the fine particles into the apparatus and is not intended to be the concentration of the foamed object. As described above, the amount of the fine particles in the Sugihara composition is 0.1 to 5 wt.% (Claim 10).

In contrast, the claimed invention is directed to an injection molded object having excellent flame retardance and Applicants have determined that a specific metal hydroxide having a content of  $\text{Na}_2\text{O}$  in the surface of less than 0.1 mass %, but greater than 0, is required for this purpose.

The Office acknowledges that Sugihara does not disclose or suggest an amount of  $\text{Na}_2\text{O}$  in the surface of the particle. Ahara is cited as showing an aluminum hydroxide having 0.3 wt. % or less of  $\text{Na}_2\text{O}$ .

Ahara describes aluminum hydroxide as a flame retardant agent which may be surface treated. However, Applicants submit that the secondary reference does not disclose nor suggest a polylactic acid composition, nor is a aluminum oxide particle having a specific surface concentration of less than 0.1 % described.

Moreover, Applicants submit that Ahara describes that 150 parts of aluminum hydroxide be used per 100 parts of thermoplastic resin [0034] which is not within the range according to the present invention.

The Office alleges that it would have been obvious to use the aluminum oxide particles in the method of Sugihara (Official Action dated November 1, 2010, page 4, paragraph 13). However, the Office has not explained why one of ordinary skill would have employed the particles at the concentration of 5 to 40 wt.% as claimed.

In a discussion of “**Examination Guidelines for Determining Obviousness Under 35 U.S.C. 103 in View of the Supreme Court Decision in *KSR International Co. v. Teleflex Inc.***” the Office has stated:

The rationale to support a conclusion that the claim would have been obvious is that **all the claimed elements were known in the prior art** and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded nothing more than predictable results to one of ordinary skill in the art at the time of the invention. “[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.” **If any of these findings cannot be made, then this rationale cannot be used to support a conclusion that the claim would have been obvious to one of ordinary skill in the art, . . .** (Federal Register, Vol. 72, No. 195, page 57529) (Bold added) (Citations omitted)

Applicants submit that as described above, the cited reference combination does not make all the elements of the claimed invention known, and accordingly, a conclusion of obviousness cannot be supported. Therefore, Applicants respectfully request that the rejection of Claims 1, 3-5, 7 10-11 and 14-17 under 35 U.S.C. 103(b) over Sugihara in view of Ahara be withdrawn.

The rejection of Claims 2, and 10-12 under 35 U.S.C. 103(b) over Sugihara in view of Ahara and Ozeki et al. (U.S. 5,760,144) is respectfully traversed.

Applicants note that Claims 2 and 10-12 depend from Claim 1 and includes all the description of the independent claim. The failure of the primary reference combination to render the claimed invention obvious is described above.

Ozeki describes polymer blends of polylactic acid and a polyhydroxyalkanoate (Abstract). However, nowhere does this reference disclose or suggest an injection molded article according to the claimed invention as a polylactic acid composition containing a metal hydroxide in a ratio of 5 to 40 mass parts per 100 mass parts of the lactic acid based resin. Accordingly, Applicants submit that Ozeki does not make a claimed element shown above to be deficient in the description of the primary reference combination, known. Therefore, the cited reference combination does not make all the elements of the invention known and a conclusion of obviousness cannot be supported. Applicants respectfully request that the rejection of Claims 2, and 10-12 under 35 U.S.C. 103(b) over Sugihara in view of Ahara and Ozeki be withdrawn.

The rejection of Claims 2, 6, and 10-13 under 35 U.S.C. 103(b) over Sugihara in view of Ahara and McCarthy et al. (U.S. 5,883,199) is respectfully traversed.

Applicants note that Claims 2, 6 and 10-13 depend from Claim 1 and includes all the description of the independent claim. The failure of the primary reference combination to render the claimed invention obvious is described above.

McCarthy describes polymer blends of polylactic acid and a polyester (Abstract). However, nowhere does this reference disclose or suggest an injection molded article according to the claimed invention as a polylactic acid composition containing a metal hydroxide in a ratio of 5 to 40 mass parts per 100 mass parts of the lactic acid based resin. Accordingly, Applicants submit that McCarthy does not make a claimed element shown above to be deficient in the description of the primary reference combination, known. Therefore, the cited reference combination does not make all the elements of the invention known and a conclusion of obviousness cannot be supported. Applicants respectfully request that the rejection of Claims 2, 6 and 10-13 under 35 U.S.C. 103(b) over Sugihara in view of Ahara and McCarthy be withdrawn.

The rejection of Claims 8 and 9 under 35 U.S.C. 103(b) over Sugihara in view of Ahara and Staendeke et al. (U.S. 4,957,950) is respectfully traversed.

Applicants note that Claims 8 and 9 depend from Claim 1 and includes all the description of the independent claim. The failure of the primary reference combination to render the claimed invention obvious is described above.

Staendeke describes a flame retardant unsaturated polyester resin composition containing ammonium polyphosphate, aluminum hydroxide and a synergetically active component. Nowhere does Staendeke describe an injection molded article according to the claimed invention as a polylactic acid composition containing a metal hydroxide in a ratio of 5 to 40 mass parts per 100 mass parts of the lactic acid based resin. Accordingly, Applicants submit that Staendeke does not make the claimed element shown above to be deficient in the description of the primary reference combination, known. Therefore, the cited reference combination, in total, does not make all the elements of the invention known and a conclusion of obviousness cannot be supported. Applicants respectfully request that the rejection of Claims 8 and 9 under 35 U.S.C. 103(b) over Sugihara in view of Ahara and Staendeke be withdrawn.

The rejection of Claims 18-19 under 35 U.S.C. 103(b) over Sugihara in view of Ahara and Takahashi et al. (U.S. 4,859,741) is respectfully traversed.

Applicants note that Claims 18-19 depend from Claim 1 and includes all the description of the independent claim. The failure of the primary reference combination to render the claimed invention obvious is described above.

Takahashi describes a polyester composition containing an epoxy resin having at least two carbodiimide groups (Abstract). However, nowhere does this reference disclose or suggest an injection molded article according to the claimed invention as a polylactic acid composition containing a metal hydroxide in a ratio of 5 to 40 mass parts per 100 mass parts

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of the lactic acid based resin. Accordingly, Applicants submit that McCarthy does not make a claimed element shown above to be deficient in the description of the primary reference combination, known. Therefore, the cited reference combination does not make all the elements of the invention known and a conclusion of obviousness cannot be supported. Applicants respectfully request that the rejection of Claims 18-19 under 35 U.S.C. 103(b) over Sugihara in view of Ahara and Takahashi be withdrawn.

The rejection of Claim 15 under 35 U.S.C. 112, second paragraph is believed obviated by appropriate amendment. The description of "whisker" is herein deleted from Claim 15. Accordingly, Applicants respectfully request that the rejection be withdrawn.

The objections to Claims 15 and 19 are believed obviated by appropriate amendment. Claim 15 is amended to delete the term "whisker" and to replace capital letters with lower case letters for generic name descriptions. Claim 19 is amended to correct the obvious spelling error.

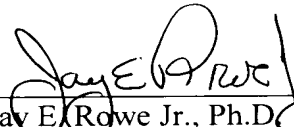
The objection to Claim 17 is moot in view of the cancellation of Claim 17 herein.

Accordingly, Applicants respectfully request that the objections be withdrawn.

Applicants respectfully submit that the above-identified application is now in condition for allowance and early notice of such action is earnestly solicited.

Respectfully submitted,

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